# Reflections on recovery, rehabilitation and reintegration of injured service members and veterans from a bio-psychosocial-spiritual perspective

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Medical interventions regarding trauma resuscitation have increased survivorship to levels not previously attained. Multiple examples from recent conflicts illustrate the potential return to high-level function of severely injured service members following medical and rehabilitative interventions. This review addresses the goals of rehabilitation, distills hard-won lessons of the last decade of military trauma and rehabilitation, and recommends the use of a bio-psychosocial-spiritual approach to care that can be applied at all tiers of the health care system. Questions on enabling participation in meaningful life activities include the following: Why do some patients do well and others do not? What elements contribute to positive outcomes? What factors relate to suboptimal results? Lessons learned revolve around the importance of considering the physical, psychosocial and spiritual aspects of a person's well-being; empowering patients by fostering self-efficacy; and helping patients find meaning in life events and set high-level goals. A bio-psychosocial-spiritual model from the rehabilitation medicine literature — the Canadian Model of Occupational Performance and Engagement — is proposed as a guide to the provision of person-centred care and the maximization of a person's functioning posttrauma.

Les interventions médicales de réanimation en traumatologie ont porté les taux de survie à des niveaux encore inégalé. Plusieurs exemples tirés de conflits récents illustrent le retour potentiel à un degré fonctionnel élevé après des interventions médicales et de réadaptation chez des membres des forces armées grièvement blessés. La présente revue expose les objectifs de la réadaptation, résume les dures leçons tirées de la dernière décennie en traumatologie et réadaptation dans le monde militaire et recommande l'utilisation d'une approche de soins bio- et psychosociospirituelle qui peut être appliquée à tous les échelons du système de soins de santé. Les questions concernant la capacité d'un retour à des activités signifiantes incluent : Pourquoi les patients n'obtiennent-ils pas tous les mêmes résultats? Quels éléments contribuent à des résultats positifs? Quels facteurs sont en lien avec des résultats optimaux? Les leçons apprises font ressortir l'importance de tenir compte des dimensions physique, psychosociale et spirituelle des personnes pour assurer leur bien-être, de les rendre autonomes en favorisant une plus grande auto-efficacité et de les aider à trouver du sens dans les événements de la vie et à se fixer des objectifs ambitieux. Un modèle bio- et psychosociospirituel tiré de la littérature en médecine de réadaptation — le Modèle canadien de rendement occupationnel et de participation — est proposé comme guide pour la prestation de soins centrés sur la personne et la maximisation de son fonctionnement après un traumatisme.

Deployed troops exposed to recent military conflicts, asymmetric warfare and improvised explosive devices (IEDs) have been at increased risk of sustaining significant injuries. Advances in prehospital care, acute interventions, trauma surgery and intensive care medicine have dramatically improved survival rates following trauma. Despite these incredible advances, service members may nonetheless experience the polytrauma clinical triad of chronic pain, posttraumatic stress disorder (PTSD) and traumatic brain injury (TBI).[1]

## THE CHALLENGE

For service members rehabilitating from complex injuries downstream from trauma care, many challenges can arise as a result of the polytrauma clinical triad. Pathways to optimal outcomes may be less apparent, particularly when it comes to chronic pain or the sequelae of TBI and mental health disorders. Associated symptom clusters can overlap with those of disordered sleep, depression and anxiety, making it difficult to determine the origin and true nature of underlying conditions[2] (e.g., structural, physiological, or mental-health related) as well as an appropriate diagnosis (often a bureaucratic and pension-related requirement), thereby complicating selection of the optimal intervention strategy. Investigations that are not only costly, but also sometimes unnecessary or more harmful than helpful in the chronic phase of care[3] may cause undue hardship. Inaccurate or delayed symptom attribution and diagnosis can impede the initiation of potentially helpful evidence-based treatment strategies. Furthermore, many polytrauma injuries can lead to long-term degenerative musculoskeletal conditions that can become sources of chronic pain. Prolonged recovery, substantial activity limitations, participation restrictions and overall compromised well-being and quality of life can result.

Injured service members and their families expect to have access to proven, safe and effective interventions at each point of the care continuum to support recovery. "Cures" and "quick fixes" are even more desirable. Specific, evidence-based treatment options, however, are more limited for chronic conditions than for acute trauma. Although education and reassurance have proven to be effective first-line interventions for many symptom clusters, additional treatment options are needed if individuals with trauma are to experience positive rehabilitation outcomes. Currently, evidence shows that approximately two-thirds of military personnel with PTSD do not respond completely to the best available evidence-based therapies.[4] This lack of an evidence-base is ubiquitous in many chronic pain, mental health and rehabilitation interventions owing to the limited ability to conduct randomized controlled trials in these often heterogeneous groups. More research is undoubtedly needed, as is access to person-centred, integrated care.[1] A broad, comprehensive approach for managing complex chronic conditions would best support the recovery and rehabilitation of individuals with trauma so that they are able to function optimally regardless of the injury they may have sustained.

## BEYOND TRAUMA: REHABILITATION

In response to the needs of injured soldiers, the Canadian Armed Forces (CAF) adopted a civilian–military partnership framework on which a CAF physical rehabilitation program was established.[5] The intent of the program was to ensure that all CAF personnel who have sustained life-altering injuries or illness receive optimal, state-of-the-art treatment and rehabilitation services that consider the unique needs of service members. It also aimed to provide person-centred services at centres as close as possible to family. Foundationally, the program consists of 7 "hubs" of military rehabilitation expertise matched with academically affiliated civilian centres of excellence; casualty management teams comprising the patient, the base surgeon, a general duty medical officer, a nurse case manager, a link nurse, a physiotherapy officer and a mental health professional; a multidisciplinary Canadian Forces Health Services (CFHS) rehabilitation program management team led by a uniformed physical medicine and rehabilitation specialist and consisting of a physiotherapist and an occupational therapist; 7 satellite centres of expertise staffed by a physiotherapist and occupational therapist; and access to mental and spiritual health services.[6]

Capt Trevor Green's experience of rehabilitation reflects the impact that such a program can have. Capt Green was injured by an axe blow to the skull from an insurgent while serving in Afghanistan in 2006.[7] He had respectfully removed his helmet in the presence of village elders. The injuries to Capt Green's brain were so severe that he was not expected to live. When he survived the initial trauma, his wife was told to seek out a long-term care facility, as he would likely never engage in meaningful activity. Knowing her husband and the fact that he was an extremely fit individual both physically and psychologically before deployment, she advocated for him to receive intensive rehabilitation at the Halvar Jonson Centre for Brain Injury Rehabilitation in Ponoka, Alberta. After a prolonged rehabilitation journey with strong psychosocial support, his subsequent recovery course exceeded all expectations given the severity of his injuries.

Ten years later, Capt Green lives at home, is a father of 2 children (1 born since his injury) and continues to make progress and gains in his function. Brain changes captured through neuroimaging seem to defy everything once taught in neuroanatomy regarding neuroplasticity and the brain's potential for increased function.[8] Capt Green's most recent goal is to participate in the Invictus Games 2020 in the Hague, Netherlands. Clearly, a narrow view of altered neuroanatomy and physiology does not explain this level of recovery, rehabilitation and reintegration. His story raises questions as to why some patients do well and others do not, what elements contribute to positive outcomes, and what factors are associated with suboptimal results.

Acute intervention and participation in a rehabilitation program can yield variable outcomes relative to desired goals. Most clinicians, and especially surgeons, will readily relate to the fact that successfully performed, technically skilled procedures can result in a range of outcomes, with some being remarkably successful and others being suboptimal (e.g., ongoing issues and pain experienced by a patient despite a successful total knee arthroplasty). So, what determines whether a patient "wins" or "loses" in recovery from life-altering events? How do we define a win or a loss in rehabilitation? It has become clear that many factors contribute to

whether a person returns to their desired level of function following severe polytrauma. Some of these factors are specific to the patient and his environment, whereas others relate to the clinician.

Treatment outcomes specific to each individual with trauma are affected by numerous factors. At the biological level, the nature, severity and complexity of the trauma(s); timeliness of access to medical supports and interventions; the quality of support received; and the person's pre-existing condition and function are important. A patient's psychological state, mental health and social supports are further contributing factors. Spiritual factors, including a person's sense of purpose, meaning, beliefs and values also come into play. Frequently, patients describe the traumas they have experienced as being akin to a "wake-up call," which, much like a life-threatening illness or injury, drives them to take stock of life and deal with issues that may have been suppressed or neglected.[9] Those undergoing rehabilitation, much like individuals in palliative care, are often challenged with deeply personal and existential questions. Confronted with their own fragility and finitude, they are often forced to connect with themselves; consider what is most important and meaningful to them; and identify thoughts, behaviours, perspectives, or relationships that are or are not desirable. Specifically, within the military population, there is a perceived disconnection from civilian society[10] that can lead to a negative perception of self and others, potentially exacerbated by injury. People who are successful at recovery generally develop new outlooks on life, adopt strategies to compensate for their losses or altered functional abilities, accept a "new normal," and live life engaged in purposeful and meaningful activities and relationships.[11]

The clinician experience of supporting a patient through acute trauma differs greatly from that of the individual with the trauma. Given that the clinician's essential role is to save life and limb, there is little time for them to ask the question "why," or to explore in detail psychosocial and spiritual factors that may impact eventual outcomes. Such questions at this stage of care may be a distraction from the task at hand and potentially lead to ineffectual clinicians. Further along the care continuum, however, consideration of nonbiological factors that influence recovery, rehabilitation and reintegration is essential. Such an understanding can help practitioners avoid pitfalls associated with applying acute care solutions and principles to chronic conditions whose etiology may not necessarily be physiologically or anatomically based.

A bio-psychosocial-spiritual model maintains that the biological, psychological, social and spiritual dimensions of a person, while distinct, cannot be disaggregated from the whole.[12] Rather, all dimensions are understood to contribute to a person's well-being and quality of life. Each particular dimension can be affected differently by a person's history and illness and can interact with and affect other aspects of the person.[12] A bio-psychosocial-spiritual model differs from both a biomedical model and biopsychosocial model of health and illness by its inclusion of spirituality. Declared by the World Health Organization to be an important dimension of quality of life,[13] spirituality is generally understood to be the continuous journey people take to discover and realize their essential selves and higher-order aspirations.[14] It is "a dynamic and intrinsic aspect of humanity through which persons seek ultimate meaning, purpose and transcendence, and experience relationship to self, family, others, community, society, nature and the significant or sacred. Spirituality is expressed through beliefs, values, traditions and practices."[15] Research is persuasive regarding the ways in which spirituality and religion positively impact physical and mental health, social engagement and health behaviours.[16] The biomedical model, which focuses primarily on the biological aspects of disease and illness, excludes both psychosocial and spiritual factors. The biopsychosocial model of health and illness,[17–20] while attributing disease outcomes to the interaction of biological, psychological and social factors, excludes the spiritual dimension. A bio-psychosocial-spiritual model uniquely considers a person's wholeness across all dimensions of the person.

An example of a bio-psychosocial-spiritual model from the rehabilitation medicine literature is the Canadian Model of Occupational Performance and Engagement (CMOP-E; Fig. 1).[21] Developed by the Canadian Association of

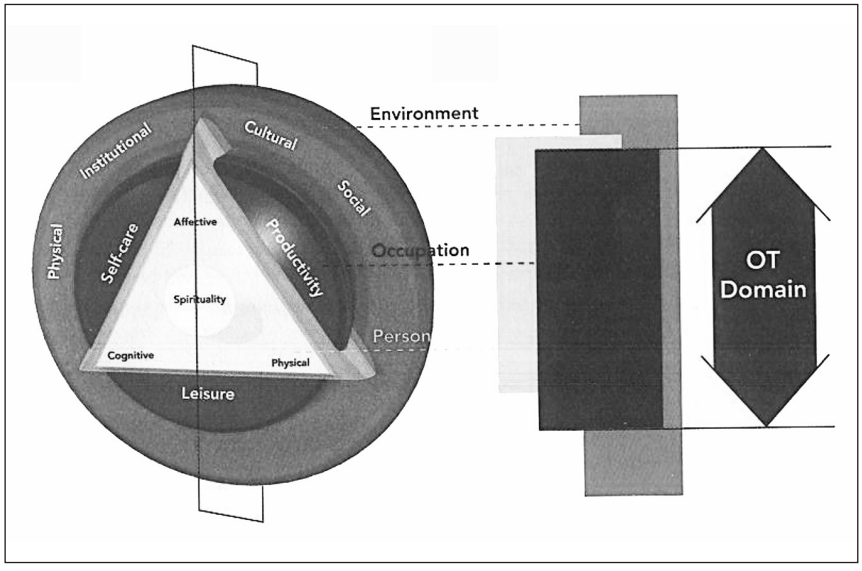


**Fig. 1.** The Canadian Model of Occupational Performance and Engagement (CMOP-E): specifying our domain of concern (reproduced with permission from Polatajko HJ, Townsend EA, Craik J. The Canadian Model of Occupational Performance and Engagement (CMOP-E). In: Townsend EA, Polatajko HJ, editors. *Enabling Occupation II: Advancing an Occupational Therapy Vision of Health, Well-being, & Justice through Occupation*. Ottawa (ON): CAOT Publications ACE; 2007).

Occupational Therapists, the CMOP-E illustrates relationships between the person (physical, cognitive, affective and spiritual dimensions), the environment in which a person exists (physical, cultural, institutional and social dimensions), and the occupations a person engages in within their environment (self-care, productivity and leisure). Application of the CMOP-E promotes person-centred practice and fosters optimal function, participation and engagement.

Among the many stories of recovery and rehabilitation by CAF members, many journeys stand out as a testimony to the power of personal, occupational and environmental factors in successfully determining outcomes (Figs. 2–5). The ultimate goal of rehabilitation is optimizing function, participation and engagement in meaningful activity and relationships. Traditionally, physicians have been trained to restore or normalize anatomical or physiological functions (i.e., impairments in body function or structure) of the patients they treat. Clearly, however, life does not revolve around only a normally functioning body and mind, but also around meaningful activities or occupations, leading to active participation and engagement in life. Multiple factors influence whether an individual's impairments will be sufficiently severe so as to create activity limitations and participation restrictions. Environmental and personal factors, as well as determinants of health and domains of well-being often play a role as large, if not larger, than the original impairment itself.

### *Environmental factors*

The military environment plays a vital role in creating opportunities for maintaining health, supporting recovery and cultivating expectations regarding collaboration. This is reflected in the "Triad of Responsibility" for the health and wellness of CAF members detailed in the 2017 Surgeon General's Integrated Health Strategy.[22] This triad includes CAF members and their families, the CFHS, and the chain of command. "Without question, CAF members and their families must be fully engaged as a partner in their health, preventing illness and injury and participating actively in their treatment and recovery when they are unwell, so that they can improve their quality of life, long term well-being and resilience, as well as their operational readiness."[22]

Actively orchestrating one's own health care and assuming a central role on the health care team is vital for service members. Although this is not an easy task, particularly for military personnel accustomed to following orders, it is nonetheless required for the process of recovery, rehabilitation and reintegration to be as successful as possible. Outcomes cannot be guaranteed, regardless of the effort a person may make or how sophisticated or technologically advanced supports and services may be; however, collaborative efforts best position service members to maximally regain health and function, participate in meaningful activity, engage, and improve well-being and quality of life. The recent announcements of further resources allocated to case management and occupational therapy within the CFHS are intended to empower CAF members to assume this role and maximize their functional abilities.

The rehabilitation environment — physical and relational — is also an important factor. Although a state-of-the-art rehabilitation centre can inspire injured service members to make efforts to regain their function, their relationships with members of the health care team are often even more foundational to their recovery. Relationships among clinicians as well as those with patients and family members set the tone for the recovery process. Certain characteristics, when exhibited by mentors, have been shown to foster resilience: availability, communication, care, role-modelling, trustworthiness, coaching, guardianship, nonjudgment and firmness.[23] These attributes are similar to qualities physicians and surgeons aspire to in the course of establishing and maintaining the patient–physician relationship. Clinicians who embody such characteristics create an environment that is conducive to well-being, health and recovery.

### *Personal factors*

Personal factors are integral to the total health, well-being and resilience of service members. They include a person's prior and current physical, mental and spiritual strengths and resources, as well as their interests and skills, beliefs and values, and sense of meaning and purpose. Previous life experiences can also result in service members being more or less vulnerable, resilient and equipped to work through a rehabilitation process.

One example of personal factors that can have an impact on physical and mental health and function is the well-described influence of adverse childhood events (Box 1).[24,25]

It is known that the prevalence of adverse childhood events is greater in the CAF than in the general Canadian population, whereby approximately 50% of CAF members versus 33% of the general population report some form of

**Box 1. Adverse childhood events**

- Physical abuse
- Sexual abuse
- Emotional abuse
- Physical neglect
- Emotional neglect
- Intimate partner violence within household
- Mother treated violently
- Substance misuse within household
- Household mental illness
- Parental separation or divorce
- Incarcerated household member

**Fig. 2.** Maj Simon Mailloux, team captain, Invictus Games 2017. Maj Mailloux is demonstrating 1 of the 6 common tasks that every Canadian Armed Forces member must be able to perform: picking and digging, escape to cover (as shown by Maj Mailloux), wire and picket carry, vehicle casualty extraction, sandbag lifting, and stretcher carry. Photo by Combat Camera.

**Fig. 3.** Cpl Dale Cross training for the Nijmegen Marches (4 × 40 km) on the Computerized Rehabilitation Environment (CAREN) at The Ottawa Hospital Rehabilitation Centre under the supervision of Capt Pauline Godsell, physiotherapy officer Canadian Forces Health Services.

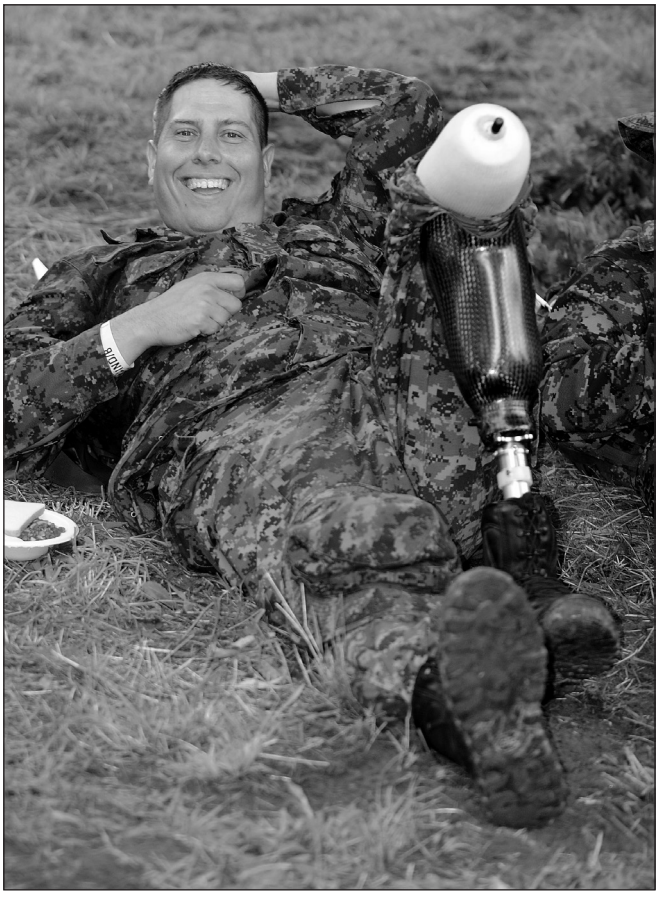

**Fig. 4.** Cpl Dale Cross resting during the 2012 Nijmegen Marches. The first time Canada fielded a marching team composed exclusively of injured and ill Canadian Armed Forces personnel.

adverse childhood event.[26] Although adverse childhood events can lead to illness in some individuals, not all do. It is vitally important for clinicians who treat CAF personnel and veterans to consider the potential influence of adverse childhood events in the course of rehabilitation and recovery.

### *Self-efficacy: the interaction of personal and environmental factors*

Ghandi said, "Your beliefs become your thoughts. Your thoughts become your words. Your words become your actions. Your actions become your habits. Your habits become your values. Your values become your destiny." Successful community reintegration, an important goal of rehabilitation, depends on much more than optimal medical care. The greatest predictor has repeatedly been shown to be a sense of self-efficacy.[27] The following are 5 pillars of self-efficacy:

1. Mastery of experiences (providing opportunities for proving oneself)
2. Vicarious experiences (being inspired by others)
3. Verbal persuasion (being encouraged by others)
4. Emotional and physiological state (how one speaks to oneself)
5. Imaginal experiences (visualization of positive outcomes)

It is well-recognized that programs such as Soldier On, Outward Bound for Veterans and the Invictus Games aim to foster self-efficacy in the realm of rehabilitation through sports and adventure training.[28] By increasing their perceived strength and physical proficiency in a sport, para-athletes regain a sense of control and mastery of their bodies, but they also experience tangible positive regard from the rest of society as they see the audience cheering them on in their athletic pursuits.[29] Furthermore, organizations such as the True Patriot Love Foundation, by pairing leaders in the business community with veterans while engaging in challenging expeditions in austere environments, report gains across many of the 5 pillars. During the expeditions, injured personnel reconnect with their physical and mental states, which had previously been perceived to be "broken," while also engaging with civilians and forming bonds with others by successfully completing difficult challenges together.[28] Such programs may effect change by helping injured and ill CAF members reclaim their lives postinjury, transfer skills into new environments and contexts, and reintegrate into civilian life.[29,30]

### *Determinants of health and domains of well-being: more than just medical care*

Determinants of health are commonly defined as the range of personal, social, economic and environmental factors that influence health status. Given that health care systems in general are responsible for only about 25% of an individual's health status and that the remaining 75% comprises lifestyle (50%), biological (15%) and environmental (10%) factors, it is clear that interventions are somewhat limited in their influence on health, particularly in the context of chronic conditions.[22] Nowhere are the limitations of the health care system more evident than in the management of chronic pain. In neuropathic pain, for example, a meagre 30% reduction in pain is reported in no more than 25% of patients treated in tertiary academic centres.[31] It is critically important for clinicians working across the care continuum to be aware of such limitations to avoid railroading patients into purely medical treatments, which we know cannot by themselves be the solution.

Domains of well-being are closely related to, though distinct from, determinants of health. Well-being constructs emphasize the importance of addressing domains other than health alone when helping patients optimize well-being. Good well-being is defined as functioning well physically, mentally, socially and spiritually, with health being a subdomain of well-being. Seven domains of well-being associated with military-to-civilian transition are of particular interest to Veterans Affairs Canada:[32]

**Fig. 5.** Sgt Bjaerne Nielsen demonstrating 1 of the 6 common tasks that every Canadian Armed Forces member must be able to perform: picking and digging (as shown by Sgt Nielsen), escape to cover, wire and picket carry, vehicle casualty extraction, sandbag lifting, and stretcher carry. Photo by Combat Camera.

1. Employment or other meaningful activity
2. Finances
3. Health
4. Life skills and preparedness
5. Social integration
6. Housing and physical environment
7. Cultural and social environment

These constructs of well-being allow for bidirectional causality such that factors in each of the domains influence well-being in the other domains. Having a good job, for example, promotes better health; having good health also promotes getting and keeping a good job. Furthermore, a patient struggling with a physical or mental health condition is likely to also be struggling in other domains.

Addressing these domains necessitates involvement from health care professionals within the health care system and nonclinical personnel alike. Robust systems in the CAF are in place to support these domains, including the Directorate of Casualty Management through Integrated Personnel Support Centers (IPSCs), Directorate of Compensation and Benefits, Service Income Security Insurance Plan (SISIP) and many more. Multiple charitable organizations also contribute to the well-being of CAF members and veterans, including Helmets to Hardhats, VETS Canada, the Royal Canadian Legion, the Military Families Fund and Military Family Resource Centres. Each community and members of Canadian society at large can also contribute to this responsibility.

Relationships between CAF's Total Health and Wellness Strategy, "Strong, Secure, Engaged"; domains of well-being outlined by Thompson and colleagues[32]; and the CMOP-E's bio-psychosocial-spiritual approach are schematized in Figure 6.[33]

## Lessons learned

Much has been learned and accomplished since the establishment of the CAF Physical Rehabilitation program. The civilian–military partnerships with academically affiliated civilian centres of excellence have provided CAF personnel with optimal, state-of-the-art, interdisciplinary treatment and rehabilitation services that have been responsive to their unique needs. But we can and should always strive to do better. In the course of providing rehabilitation, a number of lessons have stood out. What follows are some reflections on lessons learned over the course of the past number of years. For the purposes of these reflections, it is presumed that standard treatment approaches have been implemented, but were insufficient by themselves to attain the desired aim.

### *Identity*

It is absolutely critical that health care professionals inquire about patients' identities and understand the role that identities play in fostering well-being. Humans are very social creatures;[34,35] their well-being depends on

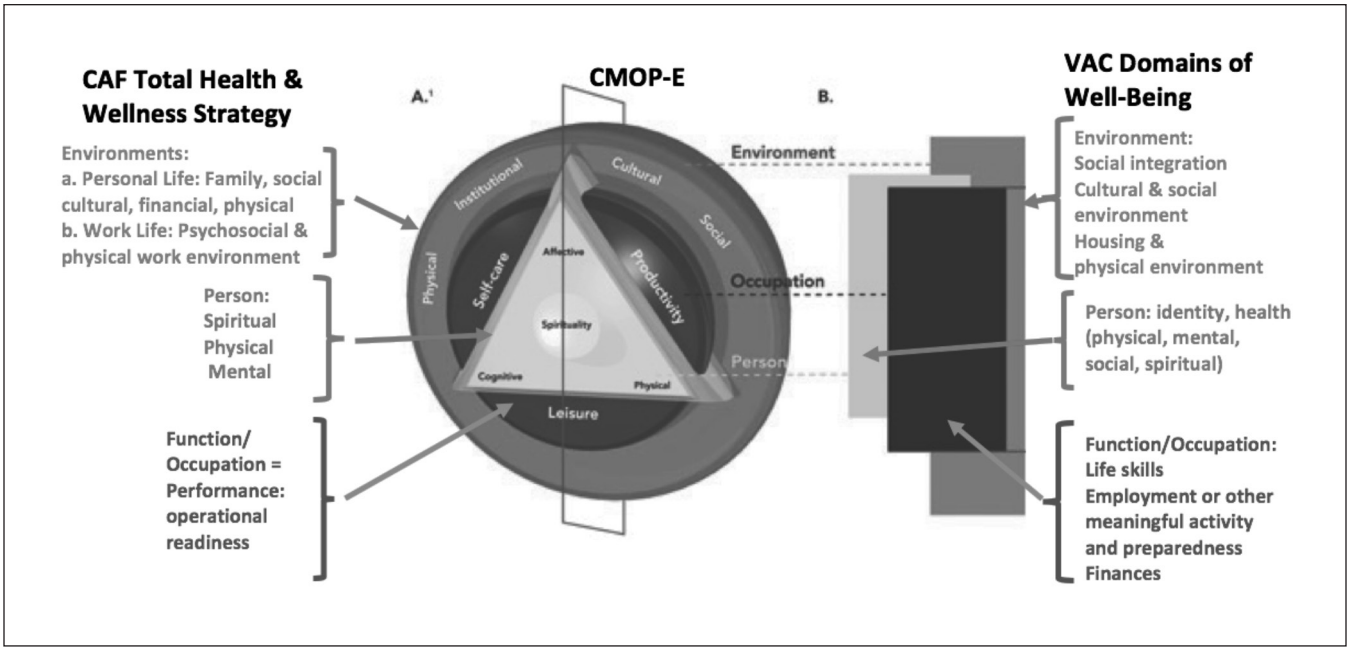


**Fig. 6.** Relationships between Canadian Armed Forces (CAF) Total Health and Wellness Strategy,[34] Canadian Model of Occupational Performance and Engagement (CMOP-E),[21] and Veterans Affairs Canada (VAC) Domains of Well-Being.[32] Reproduced with permission from CAOT Publications ACE; 2007.

social networks. Role-sets serve to reduce conflicts that may arise from being an occupant of a specific status within society. They also provide a means of identifying the social mechanisms that express the expectations of other people within the role-set of the status occupier.[36] The soldier role-set prescribes an identity of "protector" or "fighter," a person who is trained to handle extreme situations such as wars and crisis.[10] Military personnel grant greater respect to those who are physically fit and have been deployed, with the most respect going to those who have engaged in front-line combat, irrespective of rank.[10] Most military personnel are in peak physical condition, and the change of physical identity from prime physical shape to physically disabled, coupled with the potential loss of their career, is likely to have a profound effect on the individual.[21] Challenge to identity is a key issue for soldiers with chronic health problems and should be managed as a core recovery task.[37] Acquisition of chronic physical or mental health conditions constitutes a threat to one's identity and integrity and can feel like a betrayal of trust in one's body, necessitating adaptation and identity shifts.[21] It requires redefining relationships between self, body, environment and daily life. "Nothing so concentrates experience and clarifies the central conditions of living as serious illness."[37] Associations between chronic health problems and identity are complex and bidirectional. While on the one hand acquisition of new physical health problems challenges one's identity, on the other hand identity challenges are thought to play roles in the genesis of mental health problems like depression.[38,39]

### *The importance of goal setting*

Victor Frankl's seminal work, *Man's Search for Meaning*, quotes the following famous saying by Nietsche: "When man has a why to live he can get through any how!"[40] Although the goal of health care providers may not be to find any one patient's "why," all can play a part in gently nudging patients in the right direction. The notion of goal setting as the "why" that drives human behaviour to excel beyond perceived limitations imposed by physical or mental health conditions is illustrated in Figure 7.

Given a physical, psychological or physiological barrier, at least 2 compensatory strategies can enable a person to overcome an obstacle and reach a desired goal. The first is to change perspective (by observing rather than being the impairment). We are not our thoughts, nor simply our bodies or minds. Stepping back to observe the observer as opposed to identifying with one's diagnosis, although not easy, can be learned through mindfulness meditation techniques and other similar methods. The second strategy is to raise the goal. Clinicians should not hesitate to assist patients in setting their own bar as high as they can imagine it to go. Although raising the goal may sound utopian, there are many examples in rehabilitation medicine to show its effectiveness. A classic example is the Alfredson heel drop protocol for chronic Achilles tendinosis. As the story goes, Alfredson, an orthopedic surgeon from Sweden, was frustrated by the lack of progress with conservative management of his Achilles tendonopathy. In an attempt to secure a surgical solution, he eccentrically loaded his heel cord with progressively higher load,

thinking it would rupture and he would then receive surgery and finally end his misery. Interestingly, and much to his surprise, the opposite was achieved, and his condition improved. It is now considered the mainstay of treating most chronic tendonoses.[41] In general, structures need to be loaded to heal. We mend stronger in the broken places. Constraint-induced movement therapy in stroke rehabilitation is another example. Whereas patients were formerly taught to compensate with their remaining functional side, it has now been shown that forced-use is the best way to initiate neuroplastic changes.[42]

### *Technology*

Not all rehabilitation occurs in the mind. A significant environmental factor in rehabilitation revolves around access to technology. Technology provides an abundance of useful tools that assist with independent living for conditions previously thought to be irremediable. Examples include microprocessor knee units that can predict the next step of a person with lower limb amputation based on gyroscopic measurement, exoskeletons allowing individuals with spinal cord injury to walk, robotic arms, environmental control units, vehicles that can be driven by persons with high quadriplegia, and fully adapted housing. It is important to remember, however, that these devices are means to support rehabilitation, not ends in themselves.

Rehabilitation, both mental and physical is and has always been hard work. Clearly there is an appetite for "quick fixes" in the realm of mobility, mental health and chronic pain management. Providing technology simply because it is advanced or available is not indicated; it can be costly and burdensome to the individual and medical system. Too rapid an acquisition of technological innovations can also, in some cases, be an impediment to optimal rehabilitation. When technology is used, it needs be appropriate to the individual, activity, environment and stage of recovery so as to be of greatest benefit.

As technology expands and proliferates, the decisions for policy-makers have become increasingly more challenging in regard to what constitutes necessary medical rehabilitation versus what is a comfort or convenience item. Are home gyms, hot tubs, adapted recreational vehicles and the like medical necessities, or comfort or convenience items? Such questions are not always easy to answer in a universally applicable fashion, but require case by case assessments with inputs from multiple care providers in different settings.

We must therefore be cautious to differentiate between "needs" and "wants." Patients must be provided with everything that they need for successful rehabilitation. The notion that the "squeaky wheel gets the grease" can have downsides when individuals exploit their perceived rights to the detriment of others, especially in the face of limited resources. It is regrettable that legitimate access to care

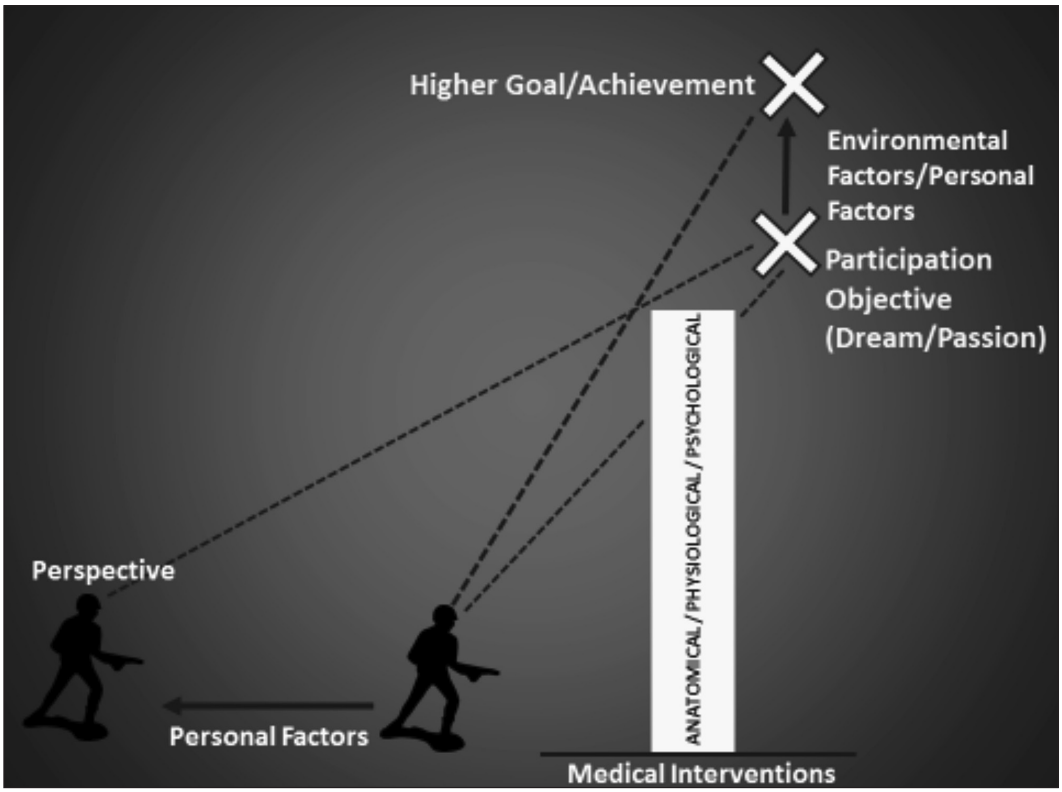


**Fig. 7.** Overcoming perceived barriers through altering perspective and higher-level goal setting.

may sometimes be hindered unintentionally by a few individuals who consume a disproportionate amount of time and resources with limited benefit without considering the impact this may have on their brothers in arms.

### *Imagination and creative pursuits*

It has been postulated by some that our mental health care systems may not necessarily require more psychiatrists or psychologists, but more kindergarten, music and art teachers to stimulate the imagination of our injured and ill patients.[25] The evidence is mounting that engaging in creative pursuits is healing for the body, mind and soul. All health care providers can contribute to encouraging their patients to explore this domain, which may provide avenues of healing.[43] In 2017, the National Endowment for the Arts expanded the Creative Forces program by adding 4 clinical sites to the existing 7 sites that provide arts therapies for service members, veterans and families dealing with TBI and PTSD.[43]

### *The importance of mindfulness*

In our busy, automated and connected worlds, service members and veterans do not often take time to sit quietly with their thoughts in a nonjudgmental fashion and focus, in so far as is possible, simply on their breathing. Such time-tested techniques have re-emerged from the necessity to find nonpharmacologically mediated peace in those who have suffered trauma. The effectiveness of mindfulness has been studied in regard to many conditions, including chronic pain.[44] Various forms of breathing meditation have been trialed among service members and veterans, with impressive results.[45] Such techniques have resulted in more focused and effective troops who are able to manage their responses to traumatic events more effectively.[46] Incorporating such techniques before deployment and early in a service member's career may be wise; its use during recovery is also beneficial.[47]

### *Finding meaning in the unthinkable: when bad things happen to good people*

Other than the "why" of living, patients often ask "why me," "why now," and "why this" after a traumatic event.[30,48,49] These questions have no easy or simple answers. Short of reciting platitudes or that "things happen for a reason," 2 phrases from seminal works by Eckart Tolle[50] stand out: "You are where you need to be right now," and "The universe is unfolding as it should."

Although simplistic, these sentences do provide solace to those living through the unthinkable and unexplainable. A statement credited to Albert Einstein may also be informative: "Imagination is more important than knowledge." It is interesting to note that in the domain of moral injury, the capacity to imagine a better future is defined as the single most important ingredient in recovery.[51]

### *The soul whispers, but the body screams*

Joseph Campbell, in *The Hero with a Thousand Faces*,[52] describes the "dark night of the soul" and the fact that almost every epic tale involves a "journey" into the depths of one's being, only for the hero to emerge stronger and with a deeper understanding and knowledge of the world around us. If one does not welcome the journey and take every hard step required, eventually the body rebels and speaks in a language that can no longer be ignored. It is critically important for clinicians to allow patients to make this journey on their own, with clinicians guiding and coaching them only so far as is necessary. Clinicians should not medicate patients' suffering to the point of numbing their ability to delve deeply into precisely the place where healing may lie. We should not deny them the possibility of learning from their most painful of journeys, nor judge their interpretation of what is happening to them. As long as our patients are not unwillingly and unwittingly constructing lies or creating false memories by reciting too much "war porn," any reasonable contextual explanation that allows them to make sense of their journey should be supported — particularly if this involves a world view that goes beyond their immediate self (Fig. 1).

### *Moral dilemmas and spiritual struggles*

Canadian Forces members are governed by the rules of unlimited liability, by which no other Canadian employees are expected to abide. This can result in situations where actions carried out by CAF members or their allies on behalf of a democratically elected government are deemed immoral.[30,48] Witnessed or perpetrated activities can result in moral or spiritual wounds, including a deep sense of guilt or shame.[48,49] Such an injury can shake a person's guiding values, beliefs and practices, and hinder their well-being.[37,53] The tremendous spiritual wounds that have resulted from the last decade of conflict have significantly affected many service members, including CAF chaplains, who have supported our troops and suffered alongside them. Efforts are currently underway to better understand this phenomenon as well as the ways in which it differs from PTSD. In addressing such struggles, it is important for health care providers to understand that well-intentioned words, such as "you were only doing your job," may not be helpful. As well, a strategy that involves prolonged exposure therapy may be ineffective or detrimental in some cases of moral injury. Perhaps acknowledging the hurt that can come from witnessing the taking of a life, regardless of the context, is sometimes more useful. Repairing relationships, self-acceptance and forgiveness have been found to be more important and

effective in helping people find some degree of resolve following such experiences.[54]

### *Spiritual resilience: a burgeoning construct*

The construct of spiritual resilience is growing within the CAF at large, and commitments are being made to ensure that CAF members are equipped with a greater literacy when it comes to understanding the often unexplainable.[33] Addressing the spiritual dimension across the military journey is essential if we are to foster resilience, prevent injury, and promote healing of wounds at the deepest levels using a whole-person approach. The CAF Chaplaincy Branch offers much in this regard, as do other members of the interprofessional team.

### *Sanctuary trauma and perceived injustice*

Much has been written regarding sanctuary trauma and perceived injustice in regard to victims of automobile accidents and work-related injury. If a patient perceives that those entrusted with his or her care have not adequately provided it, that the care provided has further contributed to the trauma, or that an injustice (real or perceived) has been committed, no amount of medical care, no matter how sophisticated, will compensate for this perceived loss. Regardless of who may or may not have been at fault, the notions of forgiveness and acceptance are the single most important ingredients to healing such trauma.[55] As was illustrated with the Truth and Reconciliation Commission in South Africa, the power of such a degree of forgiveness can truly be the source of healing of even the deepest of wounds.[56]

### *Mitigating suffering: it's all about forgiveness and acceptance*

Pain in life is inevitable; "suffering is optional" is an often-cited Buddhist phrase. Patients at all levels of care need to understand that medical treatments can affect only their pain and that they alone have control over their suffering. Empirical evidence supports the application of forgiveness to promote better mental health and has found that "unforgiveness is a stress-reaction related to poor mental health, forgiveness is a coping strategy related to improved mental health, individual differences moderate the impact of forgiveness on health, and psychological states mediate the impact of forgiveness on health."[57]

A simple equation summarizes the difference between pain and suffering: suffering = pain ÷ (forgiveness × acceptance). For every ounce of forgiveness and acceptance that patients can muster for themselves or those around them who may have contributed to their pain, their suffering can diminish exponentially. Of all the aspects of patient care with which clinicians often burden themselves, this is one of the most important. The current opioid crisis, for example, is testimony to the amount of human suffering for which patients seek quick fixes. Opioids cannot mitigate suffering beyond limited, temporary pain reduction.

### *Unconventional therapies: thinking outside the box*

Lack of proof of efficacy is not proof of lack of efficacy. Many innovative ideas have sprung from the need to find new ways to address the complex problems faced by rehabilitating service members. Some providers, as will always be the case, have seen the fate of injured and ill service members as a potential limitless supply of customers for various commercial ventures and treatments. Others have developed unique and novel programs to address unmet needs, often in a charitable fashion. Frequently, these programs have been led by veterans themselves, who likely have the most intimate knowledge of the needs being faced by their peers on a day-to-day basis. As with any novel treatment or program, the CFHS is required to adhere to standards of evidence-based practice, as would any other health care system in the country.

## Conclusion

Suggestions are easy to describe in hypothetical terms, but do they work in the real world? For clinicians who deal regularly with the fallout from major life-altering events, the bio-psychosocial-spiritual model is the foundation on which rehabilitation practices are built. We should regularly remind ourselves that the words uttered to patients are as important, if not more important at times, than the treatments prescribed or the incisions made. This humbling fact underlines the importance of bedside manner when dealing with chronic cases in particular. It has often been said that in an acute crisis, one does not much care whether the surgeon has good bedside manner, but only that he or she has good technical skills. Further downstream, however, things are not so clear. The bio-psychosocial-spiritual model considered here suggests that clear, truthful, empathic inquiry into our service members' and veterans' real fears and concerns is the technical skill most required.

Canadian Armed Forces clinicians routinely provide supports and services to victims of trauma from various sources. It has been said that, in war, the only fields that benefit are industry and medicine. The clinical lessons learned through past conflicts have been won at the high price of those who sacrificed everything. Society and medicine owes it to these individuals to not only remember them on November 11, but also to pass on to others the hard-won lessons they have taught us. Clinicians at all levels of care can use these lessons to affect the outcomes of their patients by

- adopting a positive expectant attitude whenever possible;
- being attentive to bio-psychosocial-spiritual factors that can influence recovery and functional outcomes;

- assisting patients in finding their "why" for living;
- empowering patients to set personally meaningful recovery goals;
- not underestimating the power of neuroplasticity;
- being mindful of identity and language (words are powerful);
- recognizing the difference between moral dilemmas and PTSD;
- encouraging patients to forgive and accept;
- fostering imagination through artistic expression;
- distinguishing medical "needs" from "wants";
- celebrating successes; and
- being open to new lessons yet to be learned.

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